CLAIMS

1. A biogas producing facility comprising

a first reactor for holding organic waste for production of biogas by digestion and having an output for digested waste, and

an anaerobic tank that is connected to the first reactor output for anaerobic hydrolysis of the digested waste and having an output for hydrolysed material that is connected to an input of a second reactor for adding hydrolysed material to the content of the second reactor.

2. A biogas producing facility according to claim 1, wherein the anaerobic hydrolysis is performed at a pressure that is substantially equal to the saturation vapour pressure during a period of the anaerobic hydrolysis.

3. A biogas producing facility comprising

a first reactor for holding organic waste for production of biogas by digestion and having an output for digested waste,

a separator that is connected to the first reactor output for selective separation of particles larger than a predetermined threshold size from the digested waste and having an output for the separated large particles, and

an anaerobic tank that is connected to the separator output for anaerobic hydrolysis of the separated particles and having an output for hydrolysed material that is connected to an input of a second reactor for adding the hydrolysed material to the content of the second reactor.

4. A biogas producing facility according to any of the preceding claims, wherein the first reactor also constitutes the second reactor.

5. A facility according to claim 4, wherein the separation efficiency is enhanced by adding precipitation agents or polymers upstream the separator whereby the particle size upstream the separator is increased leading to improved retention of solids for downstream hydrolysis.

6. A facility according to any of the previous claims, wherein the anaerobic tank further comprises an input for reception of organic waste material in the tank for anaerobic hydrolysis together with digested material from the first reactor.

7. A facility according to any of the previous claims, wherein the hydrolysis is performed at a temperature in the range from 50 °C – 75 °C for 0,25 to 24 hours.

8. A facility according to any of claims 1-6, wherein the hydrolysis is performed at a temperature in the range from 70 °C – 100 °C for 0,25 to 16 hours.

9. A facility according to any of claims 1-6, wherein the hydrolysis is performed at a temperature in the range from 100 °C – 125 °C for 0.25 to 8 hours.

10. A facility according to any of claims 1-6, wherein the hydrolysis is performed at a temperature in the range from 125 °C – 150 °C for 0.25 to 6 hours.

11. A facility according to any of claims 1-6, wherein the hydrolysis is performed at a temperature in the range from 150 °C – 175 °C for 0.25 to 4 hours. A facility according to claim 1 or 2, wherein the hydrolysis is performed at a temperature in the range from 175 °C – 200 °C for 0.25 to 2 hours.

12. A facility according to any of claims 4-11, wherein the threshold size is larger than or equal to 0.1 cm.

13. A facility according to any of claims 4-11, wherein the threshold size is larger than or equal to 0.2 cm.

14. A facility according to any of claims 4-11, wherein the threshold size is larger than or equal to 0.5 cm.

15. A facility according to any of claims 4-11, wherein the threshold size is larger than or equal to 1.0 cm.

16. A facility according to any of claims 4-11, wherein the threshold size is larger than or equal to 1.5 cm.

17. A facility according to any of claims 4-11, wherein the threshold size is larger than or equal to 2.0 cm.

18. A facility according to any of the preceding claims, wherein the anaerobic tank is further connected to a pressure source for provision of a pressure in the anaerobic tank above 1 atmosphere.

19. A facility according to any of claims 4-182-16, wherein the separator further comprises a dewatering device for dewatering of the separated particles.

20. A facility according to any of the preceding claims, further comprising a partitioning device for partitioning of organic waste and having an output for supplying the partitioned waste to the reactor.

21. A facility according to any of the preceding claims, wherein a first waste material with high dry matter content is mixed with livestock dung and the mixture is entered into the reactor for biogas production.

22. A facility according to claim 21, wherein the first waste material is straw.

23. A facility according to any of the preceding claims, wherein a first waste material with high dry matter content is mixed with hydrolysed material from the anaerobic tank and the mixture is input to the reactor.

24. A facility according to claim 23, wherein the first waste material is straw.

25. A facility according to any of claims 1-22, wherein a first waste material with high dry matter content is mixed with hydrolysed material from the anaerobic tank and the mixture is input to the second reactor for digestion of the mixture.

26. A facility according to claim 25, further comprising a second separator that is connected to the second reactor output for selective separation of particles larger than a predetermined threshold size from the digested waste and having an output for the separated large particles, and wherein the anaerobic tank is connected to the second separator output for hydrolysis of the separated particles.

27. A facility according to claim 26, wherein the second separator further comprises a second dewatering device for dewatering of the separated particles.

28. A facility according to any of claims 25-27, wherein the first waste material is straw.

29. A facility according to any of the preceding claims, wherein the anaerobic tank has a gas output for supplying gas produced during hydrolysis to be combined with biogas produced in the reactor.

30. A method of producing biogas comprising the steps of

producing biogas by digestion of organic waste in a reactor,

subsequently performing an anaerobic hydrolysis of digested waste in an anaerobic hydrolysis tank, and

feeding the hydrolysed material back into the reactor for further digestion and gas production.

29. A method according to claim 30, further comprising the step of

selective separation of particles larger than a predetermined threshold size from the digested waste before performing the anaerobic hydrolysis.